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Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
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In the Matter of)
)
Amendment of Parts 1, 21, and 74)
to Enable Multipoint Distribution)
Service and Instructional Television)
Fixed Service Licensees to Engage)
in Fixed Two-Way Transmissions)
_____)

MM Docket No. 97-217

File No. RM-9060

REPLY COMMENTS

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EXECUTIVE SUMMARY

In its initial comments, the Catholic Television Network (CTN) expressed support for the concept of modifying the Commission's Rules to permit two-way transmissions in the 2.5 GHz band as proposed in the Notice of Proposed Rulemaking (NPRM). However, CTN pointed out the need to modify the proposed rules to protect ITFS receive sites from harmful interference caused by upstream transmissions and to address policy concerns regarding the preservation of the instructional character of the ITFS frequencies and the autonomy of ITFS stations.

Brute Force Interference. The record in this proceeding demonstrates that brute force overload is a serious problem arising from operation of upstream transmitters in the 2.5 GHz band. The availability of post hoc remedies is not an adequate solution to this problem. Incumbent ITFS operators should not bear the risk of "horrendous" interference at their receive sites simply because there might be some way to cure it. Instead, the Commission should adopt CTN's proposed procedures for pre-installation notification and testing of response station transmitters to alleviate the potential threat of brute force interference and to facilitate identification of sources of actual interference.

Co- and Adjacent-Channel Interference. The development of two-way services poses a double threat to the continued use of ITFS as an instructional resource. First, the obligation imposed upon ITFS licensees to protect adjacent-channel response station hubs from harmful interference would virtually freeze all

ITFS stations at their existing facilities. In addition, the construction of upstream facilities would pose a serious threat of harmful interference into adjacent-channel ITFS stations. CTN submits that frequency separation between commercial upstream transmissions and ITFS downstream transmissions solves both of these problems and urges the Commission to adopt such a plan. CTN has revised its frequency separation proposal to address the concerns raised by other parties. This revised plan provides each ITFS licensee of a 4-channel group a license for a response channel, yet no refarming would be necessary. It also provide wireless cable operators the flexibility to use almost any multiple of 6 MHz up to a total of 58/60 MHz for upstream transmissions. Most importantly, this plan provides much-needed certainty to ITFS licensees that they will have access to both upstream and downstream channels and use of these channels for upstream transmissions will pose little risk of harmful interference.

ITFS Programming Requirements. CTN agrees with other commenters that 25% of the licensed bandwidth of ITFS stations operating with digital equipment should be used or reserved for instructional programming. CTN also believes that the Commission should permit use of data transmissions to satisfy these programming requirements.

Autonomy of ITFS Stations. CTN reiterates its recommendation that the Commission adopt safeguards to protect the independence of ITFS licensees and their ability to continue distributing instructional programming in the event that a station's commercial partner becomes insolvent. Specifically, the Commission

should adopt two pre-construction methods to accomplish this goal. First, the Commission should ensure that an ITFS licensee has access to all equipment necessary for continued distribution of its signal consistent with its distribution during the lease term. In addition, the Commission should require wireless cable operators implementing a digital system to establish a performance bond or escrow account with sufficient funds to ensure uninterrupted operation of participating ITFS stations.

Application Processing Rules. CTN supports streamlining application processing rules for ITFS and MDS to accelerate the grant of applications and to facilitate the introduction of innovative technologies into the marketplace. However, the comments filed in this proceeding confirm that the proposed application processing rules are impractical and would unnecessarily overburden licensees and the Commission staff. CTN has recommended licensing procedures which not only will expedite introduction of two-way services on ITFS and MDS frequencies, but also would make the process simple and transparent for applicants. The Commission should establish the first five business days of every month as filing windows for ITFS and MDS application related to the establishment of two-way services in the market. In addition, CTN agrees with the Commission's conclusion and the comments of other parties that staff review of ITFS and MDS applications is necessary. The Commission should adopt a dual grant procedure for evaluating two-way transmission applications. This procedure would allow applicants to begin constructing and operating a proposed station

under a provisional license but would require the station to resolve any actual interference problems prior to receiving final authorization.

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REPLY COMMENTS

Pursuant to Section 1.415 of the Commission's Rules, the Catholic Television Network ("CTN") hereby responds to the initial comments filed in this proceeding on January 8, 1998. As described in its Comments, CTN is an association of Roman Catholic Archdioceses and Dioceses which are licensed in the Instructional Television Fixed Service ("ITFS"). CTN has participated in all phases of this proceeding, filing comments on the Petition for Rulemaking (RM-9060) ("Petition") and the Notice of Proposed Rulemaking ("NPRM").

I. THE ACKNOWLEDGED THREAT OF INTERFERENCE ARISING FROM BRUTE FORCE OVERLOAD MUST BE ALLEVIATED BY ADOPTION OF NOTIFICATION PROCEDURES FOR UPSTREAM TRANSMITTERS.

In its initial Comments, CTN established that the operation of upstream transmitters within the 2.5 GHz band would result in a serious threat of interference to non-co-channel and non-adjacent-channel ITFS stations as a result of brute force overload at the receive site downconverter. CTN Comments, at 8-12.

No party disputes the results of CTN's analysis. Indeed, many commenting parties -- including Petitioners -- concede that brute force overload represents a source of potential interference into ITFS stations from upstream transmitters.¹ One party notes that the threat is "horrendous."²

While conceding the problem, Petitioners have attempted to downplay its significance. However, none of Petitioners' arguments allay CTN's concerns that unregulated installation of upstream transmitters will result in unprecedented and potentially devastating disruption of ITFS educational services. Moreover, if Petitioners' *laissez faire* attitude were to prevail in this proceeding, the Commission can anticipate a substantial increase in litigation regarding complaints of interference. Based on the concessions of Petitioners and the concerns of parties who have done their homework on this issue, CTN strongly urges the Commission to adopt the pre-installation notification and testing procedures for upstream transmitters outlined in CTN's initial comments. See CTN Comments, at 13-14.

¹ See, e.g., Petitioners Comments, at 74; Alliance of MDS Licensees Comments ("MDS Alliance Comments"), at 7; Comments of Wireless One of North Carolina, L.L.C. ("WONC Comments"), at 14; Joint Comments of Dallas County Community College Dist. ("Dallas Comments"), at 7; Comments of Instructional Telecommunications Foundation, Inc. ("ITF Comments"), at 30.

² See MDS Alliance Comments, at 7.

A. Brute Force Overload Is a Significant Threat to ITFS.

The record evidence in this proceeding demonstrates that brute force overload is a very real problem arising from operation of upstream transmitters in the 2.5 GHz band. Indeed, Petitioners do not disagree that this problem exists. Rather, they argue that the problem is not worthy of attention because the geographic area around any ITFS receive site in which the placement of an upstream transmitter would cause brute force overload is very small. In addition, Petitioners contend that there are numerous mitigation techniques which could be used to avoid or resolve any actual interference which may occur. See Petitioners Comments, at 71-105.

Petitioners' dismissive approach to this problem is surprising. Indeed, the gravity of the problem is well-illustrated by the extraordinary efforts of the Wireless Cable Association International ("WCA") to force major changes to the rules adopted for the Wireless Communications Service ("WCS") to protect ITFS stations from brute force overload -- just days before the Petition was filed.³ See CTN Comments, at 9-10.

³ Petitioners claim that their proposed rules will afford ITFS receive sites "far superior" protection from brute force overload caused by upstream transmissions than the ITFS receive sites currently are entitled to from WCS operations. See Petitioners Comments, at 91. This comparison is invalid, however, for at least two reasons. First, WCS power levels are significantly less than the power levels of MDS response stations. Second, WCS operations are separated from ITFS transmissions by a guardband of at least 140 MHz. See Joint Engineering Exhibit, ¶ 8.

Based on the concerns expressed in the comments and by the WCA less than a year ago, Petitioners' response to the problem is wholly inadequate. Petitioners cannot concede that brute force overload is a potential threat at every ITFS receive site (see Petitioners Comments, at 79), yet expect to prevail on their argument that the Commission should allow this potentially disruptive environment to exist unregulated simply because the geographic area available for placement of response transmitters which pose no threat is greater than the area in which interfering transmitters may be placed. No matter how small the affected area, the fact remains that every ITFS receive site is at risk.

The outcome sought by Petitioners is contrary to several well-established principles applicable to this proceeding. First, in regulation of radio services generally, as Petitioners concede, a newcomer station is obligated to protect existing stations from interference.⁴ There is no statistical exception; rather, rules are adopted for the newcomer station specifically to ensure that no harmful interference will occur. Second, in establishing rules for ITFS in particular, the Commission has always required that applicants demonstrate interference protection for all receive sites.⁵ The ability of a proposed station to protect 95% of a protected service area ("PSA") means nothing if the applicant cannot protect all the existing ITFS receive sites.

⁴ See, e.g., Midnight Sun Broadcasting Co., 3 RR 1751 (1948).

⁵ See 47 C.F.R. §§ 21.902(i); 74.903.

Third, and most importantly, this is a proceeding in which the Commission and the parties are attempting to develop a viable regulatory model to permit two-way transmissions in the 2.5 GHz band. A model based on not protecting ITFS receive sites from known interference is simply not acceptable. The solution must permit both ITFS and two-way services to survive; it cannot sacrifice ITFS in order to achieve two-way transmissions for commercial operators. If Petitioners' bottom line is to establish two-way transmissions at all costs, including ITFS, then they should seek spectrum at future FCC auctions which they can clear of incumbents for their desired purposes.

B. The Availability of Post Hoc Remedies Is Not an Adequate Solution.

Petitioners spend many pages detailing various engineering techniques for "curing" interference from brute force overload which may occur as a result of installation of upstream transmitters. See Petitioners Comments, at 90-99. Although these comments may ultimately provide a useful compendium of mitigation techniques, the mere availability of these techniques does not eliminate the need for the parties and the Commission to develop a solution to the problem.

As Petitioners point out, whether brute force overload will occur at any ITFS receive site is a function of many parameters within the exclusive control of the operator implementing two-way services. Among these parameters are the location of the upstream transmitter in relation to the ITFS receive site, the EIRP of the upstream transmitter, and the operating characteristics and polarization of

the transmitting antenna. See Petitioners Comments, at 74. Under Petitioners' proposals, these transmitters would not be regulated in any way as long as they conform to certain broad technical specifications adopted in this proceeding. In short, no ITFS operator will have any knowledge of the existence, location or characteristics of these transmitters before the transmitter is installed, service is initiated, and actual interference at an ITFS receive site occurs.

Petitioners contend that ITFS operators should be satisfied with this scenario because there are several mitigation techniques which can be employed to cure actual interference. Their reliance on post hoc mitigation techniques, however, completely misses the point. Petitioners' approach requires the ITFS operator to identify the source of interference while placing all the needed information in the hands of the wireless cable operator. Given a commercial operator's natural reluctance to interrupt a paying customer's service, the ITFS licensee presumably would be forced to satisfy the wireless cable operator as to the source before any cure could be initiated.⁶ Then, since Petitioners acknowledge that there is no one cure for all problems, various potential cures would have to be tried. Meanwhile, the ITFS receive site may not be usable and the instruction of students may suffer.

It is flatly unacceptable for ITFS operators to be required to bear the risk of "horrendous" interference at their receive sites, simply because there might be

⁶ See Comments of Univ. of Maryland System ("Maryland Comments"), Engineering Statement, at 3-4 (explaining difficulties in identifying source of interference).

some way to cure it. The Commission should reject Petitioners' post hoc solutions as wholly inadequate to deal with the brute-force overload threat and inconsistent with its policies governing ITFS.

As to the cures themselves, there is a basic flaw in Petitioners' analysis. Petitioners studied mitigation using reference antennas which are designed to predict the potential for harmful interference, not to resolve actual interference. See Joint Engineering Exhibit, ¶¶ 1-2. However, no rules were proposed in the Petition or the NPRM which would restrict the type of transmitting antenna installed at these sites to the reference antenna used in this analysis. Without such a limitation, there is no assurance at all that any of these mitigation techniques could or would resolve a brute force overload problem in the way discussed in Petitioners' Comments. See id.

Similar logical gaps must be noted in the compendium of mitigation techniques. Polarization, antenna offset and improved antenna performance are all identified as remedies. Yet, these are parameters which have already been decided for the transmitting antenna by the time actual interference occurs. Therefore, the "cure" involves changing parameters which could and should have been studied prior to installation and operation.

There is also no requirement in the rules for professional installation, nor a prohibition on customer installation. Therefore, it is not at all true that "the installer of the transceiver will know the location of ITFS receive sites within close proximity." Petitioners Comments, at 94. As to upgrading the technical

characteristics of the receive antenna, Petitioners have proposed methods that would not necessarily resolve the problem (attenuation, see Petitioners Comments, at 96-98), or do not currently exist (improved BDC dynamic range, see id., at 98), or require frequency separation which may not be present (field tunable notch filter, bandpass filter, see id., at 98-99). Therefore, the availability of these techniques do not necessarily reduce the risk which ITFS operators would have to bear that their receive sites may become nonfunctional after installation of upstream transmitters, nor do they bring the parties and the Commission any closer to a solution to a serious interference problem known to exist.

C. Pre-Installation Notification and Testing of Response Transmitters Is Required to Protect ITFS Receive Sites.

Despite the now-obvious flaws in the proposed rules, CTN remains interested in developing solutions to permit two-way upstream and downstream transmissions to coexist in the 2.5 GHz band without damaging existing and future ITFS operations. To that end, CTN proposed in its Comments a procedure to be followed for installation of upstream response transmitters to eliminate the potential for brute force overload. See CTN Comments, at 13-14. CTN's simple solution, based on information sharing, is the only proposal in the record of this proceeding for effectively controlling the threat of brute force overload prior to installation. The Commission should adopt it.

It is not sufficient, as Petitioners suggest, merely to notify potentially affected licensees prior to activation of a response station hub. Petitioners

Comments, at 104-05. The response station transmitter, not the hub, creates the potential for brute force interference. As a result, notification that a hub has been activated provides no useful information to facilitate the identification of the source of actual interference. Accordingly, the Commission should adopt CTN's proposed procedures for pre-installation notification and testing of response station transmitters.

D. New Stations Should Be Required to Correct Interference.

Petitioners ultimately concede that the failure of mitigation techniques would dictate that the offending response station be shut down. See Petitioners Comments, at 99. Even so, in an effort to ensure that actual interference to an ITFS receive site does not stand in the way of their two-way services, Petitioners also devote substantial energy to arguing that two-way service providers should not always be required to cure actual interference caused by their operations. See id., at 23 n.40. This is a startling proposal.

Petitioners identify several situations in which, they argue, a newcomer should be under no obligation to cure actual interference. CTN believes that the Commission must proceed with caution in this area, or wireless cable operators will assume they have *carte blanche* to cause interference without any obligation to correct it. First, Petitioners assume that no interference protection is warranted where the receiving antenna does not meet the Commission's technical standards for the reference antenna. The reference antenna, however, serves only

as a guide to predict the potential for interference. "The choice of receiving antennas is left to the discretion of the licensee." 47 C.F.R. § 74.937(a). A licensee is obligated to accept or correct actual interference as a result of that choice only where the new applicant demonstrates that the receiving antenna at the site is "inappropriate." Id. Mere variance from the reference antenna standard is not the guideline set forth in the rules.

Second, Petitioners claim that an ITFS receive site is not entitled to protection where harmful interference is grandfathered. In the referenced examples where interference is grandfathered, the Commission has adopted specific changes to rules which may have expanded the rights of existing facilities to protection from harmful interference *vis a vis* other existing stations. Since the NPRM proposes to retain existing interference protection rights for all stations, there does not appear to be a change in obligation to protect ITFS receive sites from actual interference.

Third, Petitioners contend that a newcomer is not obligated to cure interference where the receive site configuration can be changed -- involuntarily -- to permit operation of the interferer as proposed. Although the Commission does permit upgrades to ITFS facilities in order to avoid interference (see 47 C.F.R. § 74.986), the Commission does not permit an applicant to force channel retuning, a change in frequency, as Petitioners propose. See Petitioners Comments, at 108. To allow such forced relocations would give applicants the right to redefine any existing facility to conform with parameters dictated by their proposed facility.

Such a policy would turn inside out the basic principles of interference protection because existing facilities would have no set parameters, and it would be difficult for applicants from neighboring markets to rely on the parameters of any given station. Adoption of this policy would also contradict the Commission's (NPRM, ¶ 81) -- and Petitioners' (Comments, at 115) -- claim that no ITFS licensee would be subjected to involuntary modifications for development of a two-way transmission system.

It is disturbing that Petitioners are actively seeking reasons to avoid protecting existing facilities from actual interference. They have claimed that two-way facilities would be able to protect incumbent stations. Petition for Rulemaking, at 34. CTN has shown the difficulty in so doing. Now, rather than defending their prior statements and proposals, Petitioners simply agree with CTN and propose that at least some interference should somehow be permissible. The record in this proceeding does not warrant changing the basic principle that newcomers must correct actual interference at ITFS receive sites.⁷

⁷ Petitioners also argue that a receive site put into service after grant of the two-way applicant is not entitled to protection from interference. Petitioners Comments, at 24 n.40. CTN agrees that the Commission should retain its basic principle of "first in time" with regard to protection rights.

II. THE PRECLUSIVE EFFECT OF PROTECTING RESPONSE STATION HUBS AND THE RISK OF ADJACENT-CHANNEL INTERFERENCE MUST BE RESTRICTED, IF NOT ELIMINATED.

As CTN pointed out in its initial Comments, the development of two-way services in the 2.5 GHz band, as proposed by Petitioners, poses a double threat to the continued use of ITFS as an instructional resource. First, the obligation imposed upon ITFS licensees to protect adjacent-channel response station hubs from harmful interference would virtually freeze all ITFS stations at their existing facilities. Second, the construction of upstream facilities would pose a serious threat of harmful interference into adjacent-channel ITFS stations. Frequency separation solves both of these problems.

A. Frequency Separation Is Essential to Preserve the Growth and Flexibility of ITFS.

Frequency separation is essential to permit the future growth of ITFS as an educational resource. Unless the Commission adopts a frequency separation plan, as CTN has suggested, existing ITFS systems will effectively be frozen in place with little or no possibility of expansion. This is an unacceptable sacrifice to ask of educators, who face a growing need for ITFS to promote distance learning opportunities. See CTN Comments, at 5-8.

Without frequency separation, Petitioners' proposals are nothing short of a complete takeover of the spectrum currently allocated to ITFS. Petitioners anticipate flooding the Commission with new advanced technology applications --

for response station hubs and booster stations -- when final rules are adopted.

Petitioners Comments, at 36. Once these applications are on file, it will become difficult or impossible for ITFS licensees to perform minor modifications that are routinely filed today.⁸

Although Petitioners have committed to affording certain protections to existing ITFS stations and their registered receive sites, they exhibit little sympathy for future facilities. For example, Petitioners emphasize that wireless cable operators may interfere at will with receive sites registered after advanced technology facilities are developed. Petitioners Comments, at 23 n.40 (co- and adjacent-channel interference), 91 (brute force overload). Petitioners also claim the right to interfere with facilities applied for simultaneously. Id. at 37. Indeed, interference is all but guaranteed once a wireless cable operator has cellularized a service area with a grid of wideband response station hubs and begins installing booster stations and response station transmitters under a blanket license.

The near-impossibility of expanding ITFS facilities under Petitioners' proposal stands in stark contrast to the President's recent educational initiatives. In his annual State of the Union address, the President announced a plan to hire 100,000 new teachers and construct or modernize 5,000 schools.⁹ How will these schools receive ITFS programming after wireless cable operators have cellularized

⁸ See Maryland Comments, Engineering Statement, at 2.

⁹ See "The State of the Union Address," reprinted in *The Washington Post*, Jan. 28, 1998, at A24.

their markets? It is small wonder that at least one educator has recommended that educators file for additional receive sites in advance of the flood of advanced technology applications.¹⁰

Petitioners predict financial disaster if their proposals are not adopted. Petitioners Comments, at 24 n.40. CTN has no desire to stand in the way of development of two-way services and would celebrate the success of wireless cable operators. Indeed, many of CTN's members enjoy the technical and financial benefits of excess capacity lease agreements with wireless cable operators. However, these benefits can and should be developed without the destruction of ITFS as an independent service. There is simply no need for a commercial takeover of the ITFS spectrum in order to secure the benefits of two-way ITFS and MDS operation. With simple modifications to the two-way rules such as those CTN has proposed to allow for frequency separation, ITFS can maintain its flexibility, independence, and ability to grow to meet the educational needs of future generations.¹¹

¹⁰ See ITFS Parties Comments, at 8 n.5.

¹¹ Petitioners' suggestion to base protection for response station hubs on power spectral density rather than a D/U ratio would exacerbate the problems faced by conventional analog ITFS stations to modify or expand their facilities in a system dominated by two-way transmissions. See Petitioners Comments, at 67. Accordingly, the Commission should reject this proposal. See Joint Engineering Exhibit, ¶¶ 4-5.

B. Frequency Separation Is Essential to Protect ITFS from Harmful Interference.

As a number of comments recognized, Petitioners' proposal to "predict" adequate protection from harmful interference at co- and adjacent-channel facilities is unreliable.¹² The analysis simply assumes installation of a set of facilities which would not cause interference; yet, there is nothing in the rules which requires the applicant to install facilities in accordance with its assumptions. Unless the Commission requires applicants to apply for specific response stations, no one knows how the two-way system will develop, let alone what effect the introduction of two-way capabilities will have on co- and adjacent-channel interference.¹³ Given these uncertainties, it is necessary for the Commission to adopt a plan designed to eliminate the problem of harmful interference in another way. CTN submits that its proposed frequency separation plan provides the solution.¹⁴

¹² See Maryland Comments, Engineering Statement; Dallas Comments, at 4-6; Schwartz, Woods & Miller Comments, at 3; EDX Comments, at 1.

¹³ CTN agrees with several proposals advanced by Petitioners to measure interference in a two-way environment and urges the Commission to adopt the following: (1) Petitioners' spectrum analyzer measurement proposal (Petitioners Comments, at 129); and (2) the "double terrain-sensitive" interference calculation protocol (Petitioners Comments, at 63). See Joint Engineering Exhibit, ¶¶ 9, 12-14.

¹⁴ Even Petitioners have now conceded that their model needs modification, although they have yet to provide that modification to interested parties. See Petitioners Comments, at 65 ("Petitioners believe that it will be appropriate to modify the methodology advanced in Appendix C").

C. The Commission Should Adopt a Frequency Separation Plan.

CTN and Petitioners agree that establishing a separate block of frequencies for upstream transmissions is the best method to limit the potential for harmful adjacent-channel interference.¹⁵ See CTN Comments, at 16-19; Petitioners Comments, at 106. Accordingly, the Commission should eliminate the potential for adjacent-channel interference from response transmissions by specifying certain frequencies on which upstream transmissions are permitted. In its initial Comments, CTN proposed two frequency separation plans. See CTN Comments, at 17-18. One required a 24 MHz guardband, and the other a 6 MHz guardband between upstream transmissions and downstream ITFS transmissions. By imposing a guardband, the risk of adjacent-channel interference would be eliminated.

After reviewing the comments, CTN recognizes that the plans it has previously proposed are of concern to many parties because they involve "refarming," that is, the shifting of channel licenses among various licensees.¹⁶

¹⁵ However, CTN strongly opposes Petitioners' recommendation that ITFS stations should be required to retune involuntarily in order to facilitate development of contiguous spectrum blocks. Petitioners Comments, at 106-08. Wireless cable operators are invitees within the ITFS spectrum, and they should not be allowed to dictate the nature of ITFS facilities.

¹⁶ See WONC Comments, at 13-14; Dallas Comments, at 7; ITFS Parties Comments, at 6. CTN believes that frequency separation should not be abandoned simply because of such complexities. Obviously, Petitioners' predictive model for interference analysis presents greater complexity, yet, at least some commenters are unconcerned about its failure to provide adequate protection for ITFS. See ITFS Parties Comments, at 6.

Before discussing an alternative to these "refarming" proposals, CTN wants to explain certain features of its proposals which have apparently caused confusion.

1. The "Guardband" Would Not Need to Remain Vacant.

CTN has consistently advocated the use of guardbands to protect downstream ITFS operations from upstream response station transmissions. Seizing upon the term "guardband," Petitioners have criticized CTN's proposal as spectrally inefficient. Petitioners Comments, at 101. This criticism is wholly misdirected. CTN has not proposed that empty spectrum lie between ITFS downstream operations and upstream transmissions. Rather, CTN proposes that operations within guardbands be restricted to commercial downstream transmissions.¹⁷ This position is based on sound policy considerations.

Petitioners have proposed a highly complex engineering methodology that attempts to predict the effect of a large number of dispersed response station transmitters on co-channel and adjacent-channel operations. While Petitioners have not yet conceded the flaws in their model,¹⁸ CTN is not persuaded that the model works; and three highly respected engineering consultants have said that Petitioners' interference methodology is "unduly complicated and represent[s] an

¹⁷ See CTN Comments, Joint Engineering Exhibit, at 6 ("MDS operators could still use the 24 MHz of guardband spectrum for conventional downstream MDS operations").

¹⁸ See Petitioners Comments, at 58 n.98 (describing proposed interference methodology as "conservative").

unwarranted risk of new interference to existing ITFS stations."¹⁹ Other commenters agree with CTN that Petitioners' proposed engineering methodology is "off the mark in terms of providing good estimates of potential interference,"²⁰ "will not result in a meaningful analysis,"²¹ and "is not adequate for nationwide regulations."²²

No ITFS licensee should be subjected to the risk that another licensee could begin upstream operations on adjacent frequencies, absent an acceptable engineering demonstration of no harmful interference. In contrast, Petitioners appear to be comfortable with this risk -- it is inherent in their proposal. Petitioners admit that adjacent-channel interference between upstream and downstream transmissions will be a difficult problem to solve.²³ Accordingly, CTN's guardband approach is intended to place the risk of interference where it belongs: on the wireless cable operator.²⁴ See Joint Engineering Exhibit, ¶ 3.

¹⁹ CTN Comments, Joint Engineering Exhibit, at 5.

²⁰ EDX Comments, at 1.

²¹ Spike Tech. Comments, at 6.

²² Dallas Comments, at 3 n.2.

²³ Petitioners Comments, at 106 ("Obviously, it will be difficult to design systems that assure upstream transmissions will protect adjacent channel downstream transmissions from interference").

²⁴ CTN urges the Commission to reject the proposal advanced by Wireless One to address on a case-by-case basis situations of de minimis interference with reference to statistically-based criteria such as the percentage of geographic area affected by interference. See WONC Comments, at 5-6.